and of the dew-point. The quantity of water evaporated in a unit of time from the muslin surface may be considered as depending essentially upon the wet-bulb temperature, the dew-point, and the wind.

The *relative humidity*, or the ratio between the moisture that is present in the air and the moisture that it would contain if saturated at its observed temperature is given in Table I as deduced from the 8 a. m. and 8 p. m. observations. The general average for a whole day or any other interval would properly be obtained from the data given by an evaporometer, but may also be obtained, approximately, from frequent observations of the relative humidity.

SNOWFALL.

The *total monthly snowfall* at each station is given in Tables I and II; its geographical distribution is shown on Chart V. This chart also shows the isotherms of minimum 32° and of minimum 40° for the air within the ordinary thermometer shelter. The former isotherm is an approximate limit to possible snow, while the latter is an approximate southern limit to the regions that report frost in exposed localities.

Snowfalls are reported as follows: 1 to 15 inches in northern New England and western Nebraska; 1 to 6 in northern New York and Ohio; 1 to 9 in northern Michigan and Wisconsin; 1 to 13 in the Dakotas. In the Rocky Mountain Region the highest reported snowfalls were: Colorado, 40; Nevada and California, 16; Oregon, 36; Washington, 14.

The *depth of snow on the ground* at the end of the month is usually shown on Chart VI; it is also shown on the weekly charts of the Climate and Crop Service. At the close of April the snow was confined to isolated mountainous regions and is, therefore, not charted.

In Canada.—The following items are gathered from the map for April published by Prof. R. F. Stupart:

British Columbia, the first appearance of Pacific Coast summer type of weather was on April 11, as compared with June 13, 1896. In Osoyoos and Okanagan, after March the weather turned suddenly mild and snow disappeared; everything more advanced than usual. Nicola, snow had gone by the 10th and plowing began. Lower mainland, fruit trees promising good crops, owing to unusual warmth and consequent disappearance of the snow. Northwest Territories and Manitoba, Red River Valley, owing to the melting of an unusually large accumulation of snow, much damage has been done by flooding. Calgary, snow has disappeared. Battleford, vegetation is slow, considering the length of time since the snow melted. Quebec, snow all gone on the 22d.

ICE.

The *thickness of ice* in the rivers and harbors is shown in detail in the bulletins published by the Weather Bureau every Monday during the winter months. No special reports are at hand for April.

In Canada.—Prof. R. F. Stupart reports:

At the close of the month, Calgary, the river is low and free from ice. Prince Albert, river opened on the 19th and is very high. Quebec, navigation opened on the 25th. Charlottetown, P. E. I., ice in the harbor began to break up on the 13th. St. John, N. B., navigation opened on the St. John River on the 24th.

HAIL.

The following are the dates on which hail fell in the respective States:

Alabama, 3, 8, 30. Arizona, 26. Arkansas, 3, 7, 8, 13, 29. California, 1, 19, 20, 26, 27. Colorado, 7, 23, 24, 27, 28, 29, 30. Connecticut, 28. Florida, 9, 15, 19. Georgia, 5, 6, 9, 29, 30. Idaho, 5, 6, 20, 21. Illinois, 8, 16, 18, 22, 23, 24. Indiana, 11, 13, 16, 23. Indian Territory, 1, 3, 8, 9, 13. Iowa, 4, 16, 20 to 24, 28. Kansas, 1, 2, 3, 6, 8, 9, 19, 21 to 24, 27, 28. Kentucky, 8, 11, 16, 19, 26, 30. Louisiana, 2, 3, 5, 6, 9, 28, 29. Massachusetts, 28. Michigan, 4, 13, 23, 25, 26. Minnesota, 9, 21, 27. Mississippi, 1, 3, 29. Missouri, 1, 3, 7 to 10, 12, 13, 19, 20, 22, 23, 28, 29. Montana, 1, 10, 29. Nebraska, 1, 3, 8, 9, 20 to 24, 28. New Jersey, 5. New Mexico, 26. New York, 5, 17, 19, 22, 23. North Carolina, 5, 8. North Dakota, 3, 4, 5, 7, 10, 11. Ohio, 5, 11, 13, 16, 19, 23, 30. Oklahoma, 1, 7, 9, 13, 23, 27. Oregon, 4, 5, 6, 19, 21, 26. Pennsylvania, 5, 6, 16, 19, 26. Rhode Island, 6. South Carolina, 5, 26. South Dakota, 8, 27. Tennessee, 4, 5, 8, 11, 29. Texas, 6, 7, 13, 14, 21. Utah, 1 to 4, 7, 20, 22. Virginia, 16. Washington, 4, 6, 21. Wisconsin, 21, 24. Wyoming, 20.

SLEET.

The following are the dates on which sleet fell in the respective States:

Colorado, 6, 23. Connecticut, 28. Idaho, 4, 5. Illinois, 1, 7, 9, 12, 16, 20, 23. Indiana, 8, 9, 16. Iowa, 1, 9, 10, 20. Kentucky, 16. Maine, 9. Massachusetts, 27. Michigan, 6, 7, 9, 16, 18, 29, 30. Minnesota, 5, 8, 11. Missouri, 3, 8, 10, 19, 20. Nebraska, 1, 2, 7, 8, 19, 28. Nevada, 1, 6, 19 to 23, 27. New Hampshire, 5, 11, 27. New York, 7, 9, 17, 27. North Carolina, 1, 2, 10. Ohio, 7 to 11, 13, 16, 17, 20, 21. Oregon, 2, 6. Pennsylvania, 26, 27. South Dakota, 5, 12, 27, 28. Tennessee, 9. Utah, 6, 24. Vermont, 9. Wisconsin, 2, 5, 7, 12, 13, 15, 23, 30.

WIND.

The *prevailing winds* for April, 1897, viz, those that were recorded most frequently, are shown in Table I for the regular Weather Bureau stations.

The *resultant winds*, as deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table VIII. These latter resultants are also shown graphically on Chart IV, where the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a uniform wind of average velocity. These figures indicate the relative extent to which winds from different directions counterbalanced each other.

HIGH WINDS.

Maximum wind velocities are given in Table I, which also gives the altitudes of the Weather Bureau anemometers above the ground. Maxima of 50 miles or more per hour were reported during this month at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration, and are not given in this table):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Miles				*Miles*	
Amarillo, Tex	7	56	n.	Dodge City, Kans	28	50	n.
Do	11	54	n.	El Paso, Tex	2	60	sw.
Do	23	60	se.	Fort Canby, Wash	21	52	s.
Do	28	58	n.	Lincoln, Nebr	28	50	n.
Buffalo, N. Y	19	54	w.	New York, N. Y	26	50	nw.
Do	26	54	w.	Do	27	58	nw.
Carson City, Nev	6	59	w.	Sioux City, Iowa	18	54	nw.
Chicago, Ill	18	67	s.	Do	27	52	s.
Do	23	53	s.	Tatoosh Island, Wash.	16	55	e.
Do	23	50	s.	Winnemucca, Nev	6	60	nw.

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table IX, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 5th, 152; 8th, 127; 23d, 159; 24th, 131. Reports were most numerous in: Illinois, 155; Iowa, 114; Louisiana, 105; Missouri, 176.

Thunderstorm days were most numerous in: Florida, Kan-